



# County of San Diego

## Department of Environmental Health

### Land and Water Quality Division

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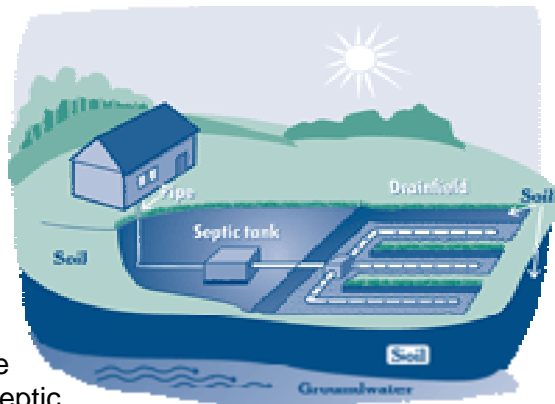
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## On-Site Wastewater Treatment Systems (Septic Systems): Permitting Process and Design Criteria

This document describes how on-site wastewater systems (OSWTS) are reviewed and permits issued in San Diego County. The document also summarizes key design criteria for these systems. This document relies on and should be read together with the County's "On-site Wastewater System Groundwater Policy."



Persons seeking OSWTS permits from the County should also review Chapter 3 [Septic Tanks and Seepage Pits] of Division 8 of Title 6 of the County Code of Regulatory Ordinances (County Code sections 68.301 et seq.), and applicable grading, building, and land use rules for the relevant municipal jurisdiction.

### State, County, and City Roles

#### State / County Coordination

On-site wastewater systems discharge pollutants to groundwater, and therefore are regulated by the State Water Code. Water Code section 13282, allows Regional Water Quality Control Boards (RWQCB) to authorize a local public agency to issue permits for and to regulate OSWTS "to ensure that systems are adequately designed, located, sized, spaced, constructed and maintained." The RWQCB, with jurisdiction over San Diego County authorizes the County of San Diego (County), Department of Environmental Health (DEH) to issue certain OSWTS permits throughout the county including within incorporated cities. No city within San Diego County is authorized to issue these permits.

The RWQCB has imposed conditions and restrictions on the County's permit program. The County is authorized to issue permits for conventional OSWTS, e.g., for septic tank and leach line and seepage pit systems anywhere in the County. The County can issue permits for mound systems in the Valley Center area only. The County is not authorized

at present to issue permits for any other kind of unconventional OSWTS that will have a subsurface discharge, unless no other option is available as a repair to an existing dwelling. The County is considering seeking such authorization. However, at present, persons seeking discharge permits for types of OSWTS that the County is not authorized to permit must apply directly to the RWQCB for a state permit.

The DEH enforces the RWQCB, Region 9, requirements of maintaining at least a five-foot separation between the bottom of the OSWTS disposal point and the highest anticipated groundwater level. Projects within the Colorado Regional Water Quality Control Board, Region 7, located east of the coastal mountains (desert), are subject to greater separation requirements, due to the extreme permeability and transmissibility of some desert basin soils.

The goal of DEH's OSWTS program is to ensure that installed on-site sewage disposal systems will last the life of the dwellings they serve, and not cause any public exposure to surfacing sewage or any contamination of groundwater or surface waters. The County concurs with the RWQCB that the separation requirements the RWQCB has imposed are appropriate minimum requirements necessary to protect groundwater quality and public health whenever septic tanks and leach lines or seepage pits are used as an OSWTS. These requirements are a condition of the State's authorization for the County to issue OSWTS permits locally. These restrictions cannot be modified by the County on a case-by-case basis, and must be rigorously implemented. The County's "On-site Wastewater System Groundwater Policy" describes in detail how the County ensures that these State-imposed requirements are met.

## County DEH / Local Land Use Agency Coordination

County DEH OSWTS review procedures provide documents that applicants may need to take to land use agencies to secure other required local permits. County DEH also reviews plans submitted to these agencies to ensure that an OSWTS will match up with the project to be constructed. The fundamental point that persons seeking OSWTS permits must remember is that the County DEH OSWTS permit process and local (including County) land use approval and permitting processes *are separate processes*. While they are coordinated to some extent, a County DEH OSWTS permit or related approval is *never* a substitute for a required local grading, land use or building permit. Similarly, no local land use approval or permit (e.g., approval of a subdivision map or lot split or boundary adjustment, even after preliminary septic system review by DEH), is a substitute for a County DEH OSWTS permit, or a guarantee that such a permit can be issued.

## System Design Considerations

The most common type of OSWTS found in San Diego County consists of a septic tank connected to leach lines. Variations of this system may include a septic tank connected to either a horizontal or vertical seepage pit. In some applications, the disposal field is at a higher elevation than the building site. In this instance, a pressure-system is used to deliver the sewage to a standard disposal field where it is distributed by gravity flow. All of these examples would be considered a "conventional" on-site wastewater system because no further sewage treatment is performed between the septic tank and the disposal field. In all cases, the sewage effluent is discharged below the ground surface, and is digested by bacteria in unsaturated soil zones for treatment of the sewage underground. These systems are designed to operate in all weather conditions with

minimal maintenance, other than periodic septic tank pumping to remove sludge from the septic tank.

The size and type of OSWTS needed for a particular building project will be a function of the following factors:

<u>Soil Permeability:</u>	Permeability determines the degree to which soil can accept sewage discharge over a period of time. Permeability is measured by percolation rate, in minutes per inch (MPI).
<u>Unsaturated Soil Interval:</u>	The distances between the bottom of the OSWTS leach field trenches and the highest anticipated groundwater level or the shallowest impervious subsurface layer at a site.
<u>Peak Daily Flow:</u>	The anticipated peak sewage flow in gallons per day. In many cases the number of bedrooms for a proposed home is used as an indicator of peak daily flow.
<u>Net Usable Land Area:</u>	The area available that meets all setback requirements to structures, easements, watercourses, or other geologic limiting factors for the design of an OSWTS

Some sites are not acceptable for conventional OSWTS based on low soil permeability, regardless of the unsaturated soil interval available at the site.

All conventional OSWTS in San Diego will require at least 5 feet of unsaturated soil between the bottom of the sewage disposal system and the highest anticipated groundwater level for the site. Depth to groundwater varies tremendously with the amount of rainfall for many areas in San Diego County. Therefore, the highest anticipated groundwater levels must be established for any OSWTS design in order to meet this separation requirement. Details are provided in the County's "On-site Wastewater System Groundwater Policy."

At sites affected by a shallow impervious layer of rock or clay, a minimum five-foot unsaturated soil interval is required between the bottom of the disposal system and the shallowest impervious layer.

The net useable land area required for an OSWTS will usually depend primarily on soil permeability and peak daily flow. Details on set back requirements and net useable land areas requirements are provided below.

## **The Permit Process**

### **"Certifications" are Not OSWTS Permits**

The process for obtaining an OSWTS permit for development on a legal lot in the County of San Diego is described in this section. This process must be completed even if a lot has previously been "certified" by the County for a septic system. Typically, any such prior certification will be noted in land use records, e.g., through a map or plan notation that the lot is "approved" or "certified" for a septic system, or in a separate County-issued

“certificate of compliance”. These notes and certificates may also state conditions for an acceptable OSWTS, such as a minimum required leach line length. *No matter how detailed and final they appear to be, these map and plan notations and certificates of compliance are not OSWTS permits, and they do not assure that an OSWTS permit can be issued.*

There are several reasons that prior County certifications as part of the land use process do not ensure that an OSWTS permit will be issued. First, County DEH can only issue OSWTS permits as authorized by the RWQCB. That authorization requires completion of the kind of process described in this section. Second, site characterization work and analysis performed to support prior County certifications may have been the best that could have been done at the time (e.g., in a period of below normal rainfall), but may nevertheless be inadequate to support an OSWTS permit. Third, new information may have come to light since a certification was issued, due to measurements taken on or near the site under different rainfall conditions. This is more likely to be the case for older certifications. Fourth, these certifications are not based on detailed project and OSWTS designs and layout plans. Certification of a lot for a septic system is not the same thing as approval of a specific system, at a specific location, for a specific project, on that lot. Finally, these certifications provide no legal entitlement. Even if a certification was construed as a permit to construct an OSWTS, that permit would expire after one year unless the system was actually constructed, inspected, and given final approval.

Certifications, while not a guarantee that an OSWTS permit will be issued, may still be relevant at many sites. This is more likely when the information relied on for the certification is recent, of high quality, and was collected during a normal average rainfall year.

## Steps in the Permitting Process

The County DEH OSWTS permitting process includes the steps set out below:

1. If a percolation test is needed, the applicant must submit a percolation test and design as performed by a registered civil engineer, registered geologist or registered environmental health specialist, certified by DEH for testing within San Diego County, for County DEH approval. The certification process for design consultants is an orientation process provided by staff to the industry of the Department's design criteria. In some cases, a new percolation test may not be needed, e.g., if the County certified a prior test during the subdivision or lot split process, and more recent information raises no new concerns or issues.

A percolation test may be required when:

- No previous County DEH certification was provided for the lot or parcel;
- The previous certification was issued without a percolation test;
- Grading or other soil disturbance has occurred in the proposed septic system location;
- The system is being shifted out of the previously tested area; or
- A disposal system other than the system previously considered is being proposed.

DEH approval of a percolation test design expires after one year, however the test data remains valid and may be used later to design and size an OSWTS for a project.

2. With percolation test data and other data in hand, the applicant must develop and submit a Layout Design for the proposed building project and specific OSWTS, for County DEH review. The Layout Design must take percolation test data and this guidance into account. See below, "The Layout Design" for additional information on submission requirements.
3. After review, if it appears likely that the proposed OSWTS can be permitted at the site, County DEH will provide an approval for the Layout Design. The County may require additional testing before providing this approval. In some cases, this additional testing will include depth to groundwater measurements during a normal average rainfall year. This may delay County DEH approval for a year or more. In some cases, DEH may conclude that a conventional OSWTS cannot be safely used on the lot. Because of the potential for delays or disapproval, DEH recommends that applicants submit a Layout Design and obtain an approval **before** incurring costs for detailed building plans and architectural fees.

The approved layout will state whether a field check of completed grading by County DEH is required. The Approval Sheet expires after one year.

4. Typically, local land use agencies will require submission of the DEH Approval Sheet before any grading or building permits are issued.

Some projects will require local grading permits and some will not. Requirements for grading permits in the unincorporated area of the County are discussed briefly below. *Approved layouts and OSWTS permits are not grading permits.*

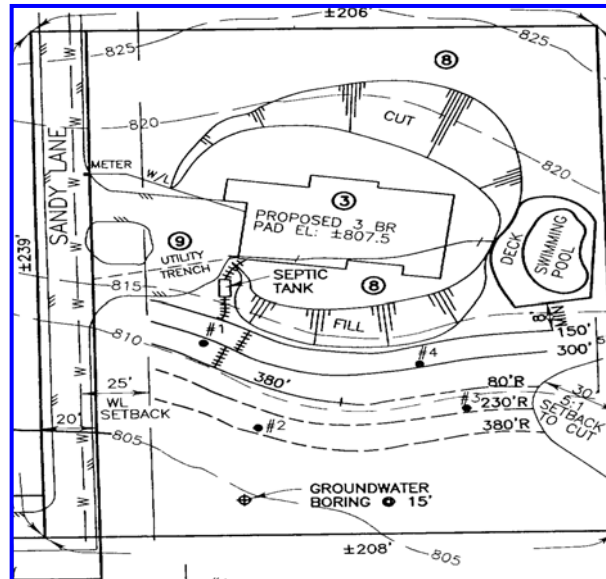
5. Before a permit to construct the OSWTS can be issued, the applicant must provide County DEH proof that a potable water supply is available for the project. Potable water in this context is water that meets bacteriological and nitrate water quality standards as defined in the California Safe Drinking Water Act for a private residence. In some situations, additional water quality testing may be required.
6. Building plans, bearing the appropriate stamp which documents plan submittal to the local land use agency, must be submitted to County DEH. The plans need not be approved by the local land use agency before being submitted to County DEH, but any significant plan amendments should be provided to DEH. County DEH will review these plans to ensure that they correspond to the project described in the approved Layout Design.
7. If the local land use agency does not require a grading permit, and the requirements set out above have been met, a permit to construct the OSWTS will be issued. This permit expires after one year.
8. If the local land use agency requires submission of a grading plan, and that plan was not submitted to DEH with the Layout Design, the grading plan must be submitted to DEH for review and approval before grading actually begins. DEH

will review the grading plan to verify that it is in agreement with the approved Layout Design.

9. If the Approval Sheet for the Layout Design indicates that a field check of complete grading is required, that field check must be completed before a permit to construct the OSWTS is issued. If the completed grading is checked and corresponds to the approved layout and the other requirements above have been met, a permit to construct the OSWTS will be issued. This permit expires after one year.
10. Once the permit to construct the OSWTS, has been obtained, the OSWTS can be installed. The system must be inspected by County DEH before the system is backfilled. If that inspection is satisfactory, DEH will sign off on ("final") the OSWTS permit (Occasionally, DEH will hold final approval on the OSWTS permit pending specific conditions to be met.).
11. In the unincorporated parts of the County, if a building permit relies on an OSWTS, County land use agencies will require DEH approval of a layout design and a valid permit to construct the OSWTS before building plans are approved or a building permit is issued. Other local land use agencies also typically require that a permit to construct the OSWTS be issued before building plans will be approved or a building permit issued.
12. Local land use agencies typically require that the OSWTS inspection be completed and the OSWTS permit be made final by DEH before occupancy permits are issued.

## The Layout Design

A layout design of the proposed building construction and on-site wastewater system is required. This drawing should be prepared using standard engineer's scale on 8 1/2" x 11" or 11"X17" size paper. The basis for the OSWTS design will be from percolation testing data and/or conditions of approval from a recorded subdivision map, parcel map, boundary adjustment, or certificate of compliance. The size of the on-site wastewater system is a function of the number of bedrooms or dwellings and the percolation rate of the soil on the site.



The layout design should contain the following information:

- Site Address;
- Tax Assessor's Parcel Number;
- Owner's Name, mailing address, and phone number;

- Consultant's name, mailing address, and phone number;
- Type of proposed construction (number of bedrooms for home);
- Number of existing or proposed bedrooms;
- Purpose of project (e.g. new dwelling, new structure, guesthouse, an addition, etc.) Specify scope of work;
- Legal Basis of parcel (map and lot number);
- Vicinity Map, Scale, North arrow, Thomas Bros. Map coordinates;
- Property Lines and lot dimensions;
- Topographical lines and elevation points (pad, floor, top leach line, etc);
- Percent slope and direction of fall;
- Proposed OSWTS design detail;
- Proposed grading with 5:1 setbacks shown along with any impacts to the site and/or adjacent property. Include energy dissipaters for pad drainage;
- All known, recorded easements on or within 20 feet of lot boundaries (open-space, utility, road, waterline, etc.);
- Identify source of potable water;
- Location of all public waterlines on or within 20 feet of property and signed water line statement;
- Location of all wells on or within 150 feet of property;
- Any soils testing information, such as deep borings or percolation tests, plotted on the design.

The layout or percolation test design approval is valid for one year. The soils testing data does not expire and will be valid in the use of the system design, unless site conditions change. If a site review reveals any evidence of groundwater changes, including but not limited to; plant growth, ponding water, new information on adjacent lots or OSWTS failures in the area, additional groundwater test borings may be required. DEH staff will specify the depth and the locations of the additional test borings in consultation with project environmental health specialists, engineers and/or geologists.

- If groundwater is observed in the borings and/or DEH has reason to believe that groundwater could rise to an unacceptable level (within 5 feet of the disposal point) during the course of a normal rainfall season, a permit will not be issued and monitoring may be required. Monitoring must be conducted during the course of a normal rainfall year when full groundwater recharge has occurred.
- The environmental health specialist, engineer or geologist must support their express conclusion that the highest historic groundwater elevation will not encroach upon the 5-foot minimum separation from the bottom of the proposed OSWTS. The supporting data shall include, but not be limited to, data on the sites topography, soils, geology, basin studies, hydro geologic studies, and groundwater-monitoring data from the on-site and off site observation wells through a normal rainfall year. <sup>1</sup>

Information on the layout shall also include the septic certification found in one of the following documents: Recorded Map, Parcel Map, Division of Land Plat, Boundary Adjustment, Certificate of Compliance, approved Percolation Test or a Layout with a waiver of percolation testing. ***The certification provided on the legal description does not ensure the lot can be approved for development based on the use of an***

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<sup>1</sup> For more information in regards to groundwater see DEH [On-Site Wastewater System Groundwater Policy](#)



**on-site wastewater system. It only provides a basis on which to size the on-site wastewater system.** A previously approved, valid layout must reflect the current proposed development of the parcel including dwelling size and location, grading and any recent off-site impacts that may affect septic system siting; otherwise, a field review will be required.

## Primary and Reserve Area Requirements

In addition to primary system design criteria, all OSWTS design proposals, for both new construction and additions to an existing structure, must show 100% reserve area for the active OSWTS unless the percolation rates require more than 100% reserve area. Refer to the leach line footage charts on accompanying pages.

1 to 60 MPI:	100% Reserve Area	no minimum lot size for existing lots
61 to 90 MPI:	200% Reserve Area	3.0 acre minimum lot size required
91 to 120 MPI:	300% Reserve Area	5.0 acre minimum lot size required

Percolation rates in excess of 120 minutes per inch demonstrate impermeable soil that should not be considered suitable for an OSWTS, as this will have a high probability of premature failure.

Any parcels once certified with reserve area smaller than the current standards must meet current design standards.

## Septic Tank Sizing Requirements for One Dwelling

DEH recommends that you always size your septic system to accommodate one additional bedroom and that a septic tank effluent filter be installed on the outlet side of the septic tank. The minimum size septic tank is 1,000 gallons for 1 to 3 bedrooms, 1,200 gallons for 4 bedrooms and 1,500 gallons for 5 or 6 bedrooms. This does not apply to second dwellings, which may require an additional septic tank and separate leach field. The layout approval is the approval of the design for the on-site wastewater system and is *not* the permit for the installation.

## Second Dwelling Septic Tank Sizing

Since each dwelling can have a kitchen with a dishwasher and garbage disposal, along with a laundry facility, second dwellings are not comparable to an additional bedroom when calculating the size of an OSWTS. If a common system is used for both the main house and the second dwelling, the tank size must be calculated as separate flows for each dwelling, even if a common septic tank is used.

The requirements will be as follows:

Main Dwelling	Second Dwelling	Minimum Tank Size
1 BR	1 BR	1000 Gallons
2 BR	1 BR	1200 Gallons
2 BR	2 BR	1500 Gallons
3 BR	1 BR	1500 Gallons
3 BR	2 BR	1500 Gallons
4 BR	1 BR	1500 Gallons
4 BR	2 BR	2000 Gallons



*Dwellings that have more bedrooms than the above will require a design with oversized or a battery-type tank, if a common system is being proposed. Separate tanks for each dwelling could be used even if connected to a common disposal field.*

## Setbacks

Setbacks in layout designs refer to the required spacing in distance from components of the sewage disposal system and to structures, property lines, easements, watercourses, wells, or grading. Specific setback requirements will vary based on the type of system design and site conditions. These are:

System Component	Setback To:	Minimum Distance
Septic Tank	Structure	5 feet
Septic Tank	Property Line	5 feet
Septic Tank	Water Well	100 feet
Leach Lines	Structure	8 feet
Leach Lines	Property Line	5 feet
Leach Lines	Water Lines (Public)	25 feet from edge of easement <sup>1</sup>
Leach Lines	Water Well	100 feet <sup>2</sup>
Leach Lines	Drainage Course	50 feet from top of bank
Leach Lines	Flowing Stream	100 feet from top of bank
Leach Lines	Pond	100 feet from spillway elev.
Leach Lines	Reservoir	500 feet to 1000 feet based on average slope <sup>3</sup>
Leach Lines	Aqueduct	100 feet from edge of easement <sup>4</sup>
Leach Lines	Road Easements	8 feet from edge of ultimate easement width <sup>5</sup>
Leach Lines	Cut Slopes	5:1 Setback from top of cut slope <sup>6</sup>
Leach Lines	Septic Tank	5 feet
Leach Lines	Leach Lines	10 feet
Leach Lines	Seepage Pits	15 feet
Seepage Pits	Structure	10 feet
Seepage Pits	Property Line	10 feet
Seepage Pits	Water Lines (Public)	25 feet from edge of easement <sup>1</sup>
Seepage Pits	Water Well	150 feet <sup>2</sup>
Seepage Pits	Drainage Course	50 feet from top of bank
Seepage Pits	Flowing Stream	100 feet from top of bank
Seepage Pits	Pond	100 feet from spillway elev.
Seepage Pits	Reservoir	500 feet to 1000 feet based on average slope <sup>3</sup>
Seepage Pits	Aqueduct	100 feet from edge of easement <sup>4</sup>
Seepage Pits	Road Easements	10 feet from edge of ultimate easement width <sup>5</sup>
Seepage Pits	Cut Slopes	5:1 Setback from top of cut slope <sup>6</sup>
Seepage Pits	Septic Tank	5 feet
Seepage Pits	Seepage Pits	20 feet

1. The setback to a domestic water line may increase if the 5:1 setback of the utility trench depth exceeds the 25-ft setback.
2. The minimum setback may be increased if site conditions show the minimum setback is insufficient to protect groundwater supplies.

3. The State Department of Public Health has recently revised their setback criteria to reservoirs, and will consider a reduction of the setback on a case by case basis.
4. Any reduction in the Aqueduct setback requires approval from the San Diego County Water Authority or other purveyor, if another district.
5. The setback may increase if the 5:1 setbacks to road cuts are greater than the minimum setback.
6. No part of an on-site wastewater system, with the exception of a septic tank, pump chamber, enclosed filter, or tight sewer pipe, shall be located closer than a 5:1 setback distance to the top of a cut bank, or the edge of an excavation. The horizontal distance would be five times the height of the cut or depth of the excavation. This setback would also be applied to the top of an eroded bank or natural slope in excess of 60%.

## Leach Line Linear Footage Requirements

The charts located at the end of this policy show the corresponding length of leach line as a function of percolation rate and the number of bedrooms for a single-family dwelling. \*The one-bedroom design lengths correspond to 2<sup>nd</sup> dwelling systems on a shared system with the main house or its own system.

## Seepage Pits

Seepage Pits will require full percolation testing by a licensed civil engineer, registered geologist, or registered environmental health specialist.

- Horizontal seepage pits cannot be used if percolation rates exceed 30 minutes per inch.
- Vertical seepage pits are restricted to coastal sedimentary basins that have saltwater intrusion into the groundwater with TDS levels in excess of 1500 ppm.
- Desert seepage pits are used alluvial areas of the San Diego County desert areas, and percolation testing may be waived.

## Grading Plan Review

Upon approval of a layout by DEH, the Specialist will write in the grading line on the approval form indicating whether a field check of completed grading is required prior to issuance of a septic tank permit. Keep in mind that DEH grading approval is not the same as local land use agency grading approval. For the unincorporated parts of the County, some small projects may not require grading permits. For other projects, County land use agencies issue the following kinds of grading permits:

- **Minor Grading:** Processed through the Department of Planning and Land Use (DPLU), Building Division. Please see the Grading Plan Checklist (DPLU: BLDG-009, Rev. 1-99). Phone: (858) 565-5920.
- **Major Grading:** Processed through the Department of Public Works, Land Development Division, Grading Improvements. Please see the Major Grading Plan Checklist. Phone: (858) 694-3281.

Minor and/or major grading plans will be reviewed by DEH prior to grading to determine impacts to the approved on-site wastewater system and adjacent properties. After completion of the grading, the appropriate DEH field office must be contacted to arrange for a field check, unless the field check is waived on the layout approval.

## Building Plan Review

The DEH recommends that you obtain approval of your on-site wastewater system prior to expending funds for a final set of architectural plans for your home. Plans for a new or second dwelling must be submitted to the DPLU, Building Division at the Ruffin Road office for processing and approval. Upon approval of the plans, the owner/agent may hand carry the plans to the DEH counter at any of the DEH field offices for a verification of bedrooms and plot plan concurrence with the approved layout. Bedrooms are used to determine the potential occupancy of a dwelling and therefore the potential amount of wastewater that will be generated. Libraries, dens, sewing rooms, recreation rooms and similar rooms may be counted as bedrooms unless the entrance wall is greater than 50% open or other means which eliminate privacy. The presence of a closet is not a determining factor for a bedroom.

### **GUIDELINES**

1. Once the living room, dining room, family room, kitchen, bathrooms, and utility rooms have been established, all other rooms shall be considered as potential sleeping rooms. Dens, libraries, studies, weight rooms, sewing rooms, workshops, etc., shall be determined as bedrooms if they do not conform to the criteria listed below.
2. All other habitable rooms totaling at least seventy (70) square feet in size are to be considered bedrooms suitable for sleeping purposes, regardless of whether or not they contain closets or have access to a bathroom.
3. Rooms that open to a living room, dining room, family room, kitchen, or entry way, and have a single, un-obstructive opening (no doors) with a minimum 50% opening of the total wall space (minimum 6' wide) with archways or other acceptable means shall not be considered as bedrooms, due to the lack of personal privacy presented by the opening.
4. Rooms that can only be accessed through another bedroom are to be considered part of that bedroom, such as master suite and not an additional bedroom.
5. In the case of an ambiguous situation, where it is not clear as to whether or not a room is a bedroom, the plans may be re-reviewed on a case-by-case basis by the area supervisor for the respective district.
6. Any cases, which will require the relocation or modification of doorways, are to be reviewed and approved by the Department of Planning & Land Use to address any structural considerations such as load bearing walls. This is to be done prior to approval or sign-off by the Department of Environmental Health.

## Potable Water Supply

DEH will require proof of potable water supply. A public water supply should be confirmed with proof of a service availability letter from the water purveyor. A domestic water well will require proof of potability. A copy of the Well Laboratory Report that indicates the absence of bacteria and nitrate contamination of less than 10 mg/l of Nitrate-N or 45 mg/l of nitrate will be necessary for proof of potability of a private well. The date of the test cannot be more than 1 year old. If a valid test does not exist, the

well must be sampled for bacteriological and nitrate levels. Hand-dug water wells will not be accepted as a potable water supply.

DEH staff will collect water samples from private wells, which will be tested at the County of San Diego Public Health Lab. A fee is required for the water sample analysis.

When all applicable items above have been completed to the satisfaction of this Department, a septic tank permit can be issued to the owner/agent or to a contractor with the required license(s) from any of the above-listed DEH offices. The permit is valid for one year.

In order to make septic tank permit processing as smooth as possible, it is recommended that you maintain a record of all paperwork and project control numbers obtained from each Department.

## Definitions

<u>Absorption Area:</u>	The amount of land area required to treat a daily discharge of sewage based on percolation rate and design flow, described in square feet.
<u>Aqueduct:</u>	A municipal water pipeline located in an easement for the San Diego County Water Authority and the Metropolitan Water Authority.
<u>Bedroom:</u>	A habitable room totaling at least seventy (70) square feet in size, considered suitable for sleeping purposes, regardless of whether or not the room contains or has access to a closet and a full or $\frac{3}{4}$ bathroom, and does not directly open to a garage or other bedroom.
<u>Chamber System:</u>	A leach field design that uses a plastic chamber instead of perforated pipe and rock in the excavation.
<u>Circulation Element:</u>	A public road that has been designated by the Department of Public Works as a major traffic collector.
<u>Cut Bank:</u>	The vertical distance across of the face of graded slope where soil has been removed.
<u>Daily Sewage Flow:</u>	The amount of sewage generated in a 24-hr period,
<u>Drainage Course:</u>	A seasonal stream, eroded channel, lined drainage channel, swale, gully, ravine, dry creek bed, etc.
<u>Easement:</u>	A recorded section of land used for specific purpose or restricted from development such as utilities, roadways, water mains, open-space, drainage, etc.
<u>5:1 Setback:</u>	A horizontal distance 5 times the height of a cut bank or depth of an excavation to an OSWTS located up gradient.

<u>Groundwater:</u>	Subsurface water present in the upper soil zones, in the void spaces between soil particles, between confining soil layers, and in aquifers.
<u>Health Dept. Certification:</u>	The sizing requirements for an OSWTS established by a previously approved percolation test, recorded land division plat, recorded parcel map, recorded subdivision, boundary adjustment, or certificate of compliance.
<u>Holding Tank:</u>	A temporary sewage disposal system consisting of a 1500 gallon septic tank, alarm system, and maintenance contract; intended for a short duration until an approved sewer is installed.
<u>Horizontal Seepage Pit:</u>	A component of a sewage disposal system that consist of pre-cast concrete rings within an excavation typically 5-feet wide, and 8-feet deep. Percolation rates cannot exceed 30 minutes per inch.
<u>Leach Line:</u>	A component of a sewage disposal system that consist of an 18-inch wide trench, 3 to 5 feet deep, with perforated leach line pipe suspended over a bed of 1.5-inch diameter rock.
<u>Percolation Rate:</u>	The amount of time it takes water to be absorbed into the soil within a test boring under controlled, saturated conditions and described in minutes per inch.
<u>Pump Chamber:</u>	Typically a modified septic tank used to contain the pump system for a non-gravity sewage disposal system.
<u>Reserve Area:</u>	It is an area available for replacement of the active disposal field design. Average percolation rates of 60 minutes per inch or less require 100% reserve area. Percolation rates from 61 to 90 minutes per inch require 200% reserve area. Percolation rates from 91 to 120 minutes per inch require 300% reserve area. Percolation rates greater than 120 minutes per inch are not considered permeable soil. Reserve areas must meet all of the design requirements of a primary system area.
<u>Septic Tank:</u>	Used to settle and separate the solids and sewage effluent. Only partial sewage treatment occurs within the septic tank, and the sewage effluent leaving the tank still contains pathogens.
<u>Surge Tank:</u>	Receives sewage effluent from the pump chamber to allow gravity-flow into the leach field or seepage pit in a non-gravity system.
<u>Vertical Seepage Pit:</u>	A component of a sewage disposal system that is used in coastal, sedimentary basins that are degraded by salt water. Vertical seepage pits must maintain the same

separation to groundwater as other conventional designs. Vertical seepage pits are restricted from inland, granitic basins where groundwater is used for a drinking water resource.

**DISPOSAL TRENCH LENGTH BASED ON PERCOLATION TEST RESULTS**

**Percolation Rate Average  
Time in Minutes/Inch (MPI)  
Number of Bedrooms**

**Percolation Rate Average  
Time in Minutes/Inch (MPI)  
Number of Bedrooms**

<b>MPI</b>	<b>1*</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>MPI</b>	<b>1*</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b>1</b>	200	200	240	270	280	300	<b>41</b>	310	385	460	520	575	635
<b>2</b>	200	200	240	270	280	300	<b>42</b>	310	390	470	530	585	645
<b>3</b>	200	200	240	270	280	300	<b>43</b>	310	390	470	530	585	645
<b>4</b>	200	220	260	290	300	310	<b>44</b>	310	395	480	540	595	655
<b>5</b>	200	240	290	320	320	340	<b>45</b>	320	400	480	540	595	655
<b>6</b>	200	250	300	340	350	360	<b>46</b>	320	400	480	540	595	655
<b>7</b>	210	260	310	350	370	380	<b>47</b>	320	405	490	550	605	665
<b>8</b>	210	265	320	360	390	400	<b>48</b>	330	410	490	550	605	665
<b>9</b>	220	270	320	360	400	410	<b>49</b>	330	410	500	560	615	675
<b>10</b>	220	275	330	370	410	420	<b>50</b>	330	415	500	560	615	675
<b>11</b>	220	280	340	380	420	430	<b>51</b>	340	420	500	560	615	675
<b>12</b>	230	285	340	380	430	440	<b>52</b>	340	420	510	570	625	685
<b>13</b>	230	290	350	390	430	450	<b>53</b>	340	425	510	580	635	695
<b>14</b>	235	295	350	400	440	460	<b>54</b>	340	430	520	580	635	695
<b>15</b>	240	300	360	400	450	470	<b>55</b>	340	430	520	580	635	695
<b>16</b>	240	300	360	410	450	490	<b>56</b>	350	435	520	590	645	705
<b>17</b>	240	305	370	410	460	500	<b>57</b>	350	440	530	590	645	705
<b>18</b>	250	310	370	420	460	510	<b>58</b>	350	440	530	600	655	715
<b>19</b>	250	310	380	420	470	520	<b>59</b>	350	445	540	600	655	715
<b>20</b>	250	315	380	430	470	520	<b>60</b>	360	450	540	610	665	725
<b>21</b>	260	320	380	430	480	530	<b>61</b>	370	460	550	620	690	740
<b>22</b>	260	320	390	440	480	530	<b>62</b>	380	470	560	630	680	720
<b>23</b>	260	325	390	440	490	550	<b>63</b>	390	480	570	640	690	730
<b>24</b>	260	330	400	450	500	560	<b>64</b>	400	490	580	650	700	740
<b>25</b>	260	330	400	450	500	560	<b>65</b>	420	500	580	660	710	750
<b>26</b>	270	335	400	450	510	570	<b>66</b>	420	510	600	670	720	760
<b>27</b>	270	340	410	460	515	575	<b>67</b>	430	520	610	680	730	770
<b>28</b>	270	340	410	460	515	575	<b>68</b>	440	530	620	690	740	780
<b>29</b>	270	345	420	470	525	585	<b>69</b>	450	540	630	700	750	790
<b>30</b>	280	350	420	470	525	585	<b>70</b>	460	550	640	710	760	800
<b>31</b>	280	350	420	480	535	595	<b>71</b>	470	560	650	720	770	810
<b>32</b>	280	355	430	480	535	595	<b>72</b>	480	570	660	730	780	820
<b>33</b>	290	360	430	490	545	605	<b>73</b>	490	580	670	740	790	830
<b>34</b>	290	360	440	490	545	605	<b>74</b>	500	590	680	750	800	840
<b>35</b>	290	365	440	500	555	615	<b>75</b>	510	600	690	760	810	850
<b>36</b>	300	370	440	500	555	615	<b>76</b>	520	610	700	770	820	860
<b>37</b>	300	370	450	500	555	615	<b>77</b>	530	620	710	780	830	870
<b>38</b>	300	375	450	510	565	625	<b>78</b>	540	630	720	790	840	880
<b>39</b>	300	380	460	510	565	625	<b>79</b>	550	640	730	800	850	890
<b>40</b>	300	380	460	520	575	635	<b>80</b>	560	650	740	810	860	900



**Percolation Rate Average  
Time in Minutes/Inch (MPI)  
Number of Bedrooms**

<b>PI</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b>81</b>	660	750	820	870	910
<b>82</b>	670	760	830	880	920
<b>83</b>	680	770	840	890	930
<b>84</b>	690	780	850	900	940
<b>85</b>	700	790	860	910	950
<b>86</b>	710	800	870	920	960
<b>87</b>	720	810	880	930	970
<b>88</b>	730	820	890	940	980
<b>89</b>	740	830	900	950	990
<b>90</b>	755	845	915	965	1005
<b>91</b>	770	860	930	980	1020
<b>92</b>	785	875	945	995	1035
<b>93</b>	800	890	960	1010	1050
<b>94</b>	815	905	975	1025	1065
<b>95</b>	830	920	990	1040	1080
<b>96</b>	845	935	1005	1055	1095
<b>97</b>	860	950	1020	1070	1110
<b>98</b>	875	965	1035	1085	1125
<b>99</b>	890	980	1050	1100	1140
<b>100</b>	905	995	1065	1115	1155
<b>101</b>	920	1010	1080	1130	1170
<b>102</b>	935	1025	1095	1145	1185
<b>103</b>	950	1040	1110	1160	1200
<b>104</b>	965	1055	1125	1175	1215
<b>105</b>	980	1070	1140	1190	1230
<b>106</b>	995	1085	1155	1205	1245
<b>107</b>	1010	1100	1170	1220	1260
<b>108</b>	1025	1115	1185	1230	1270
<b>109</b>	1040	1130	1200	1250	1290
<b>110</b>	1055	1145	1215	1265	1305
<b>111</b>	1070	1160	1230	1280	1320
<b>112</b>	1085	1175	1245	1295	1335
<b>113</b>	1100	1190	1260	1310	1350
<b>114</b>	1115	1205	1275	1325	1365
<b>115</b>	1130	1220	1290	1340	1380
<b>116</b>	1145	1235	1305	1355	1395
<b>117</b>	1160	1250	1320	1370	1410
<b>118</b>	1175	1265	1335	1385	1425
<b>119</b>	1190	1280	1350	1390	1440
<b>120</b>	1210	1300	1370	1420	1460